



THE CITY OF HIGH POINT DEPARTMENT OF TRANSPORTATION

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PURPOSE OF THE WORK ZONE SAFETY MANUAL

Work zone safety is an ongoing concern for The City of High Point Department of Transportation. The safety and efficiency of a roadway is impacted by the amount and type of interference experienced by the vehicles moving on it.

This manual outlines basic work zone set-up principles needed to carry out work in the right-of-way within The City of High Point. The information contained in this document is provided as a quick reference guide for the installation of simple work zones. All information herein is taken from The Manual on Uniform Traffic Control Devices, 2003 Edition (MUTCD).

With the use of the practices outlined in the MUTCD, we look to heighten driver awareness when approaching a work zone. Our goal is the safe movement of motorists through work zones by giving drivers clear, predictable information of the road activities taking place in the roadway ahead.

For typical daytime operations, the Work Zone Safety Manual can be used as a basic guideline for work zone setup practices.

Before going to the work site:

- Have an approved traffic control plan and lane closure permit. Load needed traffic control devices and check their condition.
- Do you have the appropriate number and size of message signs that are clean and legible for today's work activity? Do you have the appropriate number and size of cones or drums for today's work activity?
- Make sure employees have needed personal protective equipment.
- Do you have the appropriate number of vests, orange hats, stop/slow paddles and trained flaggers for today's work activity?
- Review the traffic control set-up with the crew.

Park in areas that:

- Provide safe entrances and exits for the work area.
- Do not create potential conflicts with other vehicles/equipment operating in the work area.
- Provide maximum protection for workers getting in and out of the vehicles.
- All vehicles/equipment in the work zone should be parked on the same side of the road.

General Tips:

- Employees should work facing traffic. If this is not practical, a lookout should be provided.
- Employees should be alert to the job site hazards and should identify appropriate escape routes.
- Make sure flaggers are properly trained and equipped.



- Work zones should be inspected frequently to ensure devices are in place and that traffic is flowing adequately.
- Signs should not be left out during lunch or overnight unless necessary.
- If lane closures are required overnight, signing, barrels, cones, and barricades should be reflectorized and equipped with battery powered amber flashing lights.
- Work zone planning, set-up, and maintenance is the contractor's responsibility! Doing it right the first time will make your job simpler and safer!

WORK SAFE !

ELEMENTS OF A TRAFFIC CONTROL PLAN

More complex situations should be properly planned by trained personnel.

- A Traffic Control Plan describes the way traffic will be safely controlled throughout a work zone. SAFETY should be the major consideration when planning work zone areas.

- There are four (4) areas that make up a temporary work zone. They are described in the order in which drivers approach them.

- **ADVANCE WARNING AREA**

In the advance warning area, drivers are informed of what to expect when passing through the roadway ahead. The advance warning may vary to include signs, or possibly flashing lights on a vehicle.

- **TRANSITION AREA**

In the transition area drivers are directed from their normal path, to a new path created to allow safe travel through the work zone. The transition area may vary to include cones, barricades, drums, and flagmen.

- **ACTIVITY AREA**

The activity area is where the work will be performed for the purpose of the work zone. This area consists of two (2) sections: The work space itself, and the traffic space created for safe traffic movement around the work space.

- **TERMINATION AREA**

The termination area is used to return drivers back to their normal traffic path.

DEVICES USED IN YOUR WORK ZONE

- **Warning Signs** in all traffic control areas, shall have black letters on an orange background. Signs should be 36" x 36" inches in size.



- **Traffic Cones** used in work zone areas, shall be orange colored and should be a minimum height of 28" inches in size. If cones are to be left out overnight they shall have a reflective band.



- **Barricades and Drums** used in the work zone shall be orange and white in color.



- **Safety Vests** should be used by all members of your work zone crew.



ADVANCED WARNING SIGN PLACEMENT REQUIREMENTS

- **ADVANCED SIGN PLACEMENT TABLE**

When setting up your work zones, refer to this table for adequate warning distances.

- Signs should be located on the **right-hand** side of the roadway. When special emphasis is needed, signs may be placed on both left and right side of the roadway.
- Signs may be mounted on portable supports in temporary work zones.
- In mobile work zones a large sign may be mounted on a maintenance vehicle stationed in advance of the work or moving along with it.

**Advanced Warning
Sign Placement Table: (Feet)**

Road Type	Distance Between Signs		
	A	B	C
Urban (low speed)	100'	100'	100'
Urban (high speed)	350'	350'	350'
Rural	500'	500'	500'

TAPER REQUIREMENTS

- Tapers are created using a series of channeling devices or pavement markings placed to move traffic out of or into its normal path.
- Tapers should be used in work zones encroaching into traffic lanes.
- When setting up your work zones, refer to this table for adequate Taper distances.
- Taper lengths may vary to agree with the conditions surrounding the work zone. Substandard tapers must be pre-approved by HPDOT.

Taper Length Formula: (Feet)

L = Length W = Width S = Speed

For speed limits of (40 mph) or less:

$$\frac{W(S \times S)}{L} = 60$$

For speed limits of (45 mph) or greater:

$$L = WS$$

Typical Taper Length and Cone Spacing

Taper Length	Cone Spacing
25 MPH = 115'	25'
35 MPH = 225'	35'
45 MPH = 495'	45'

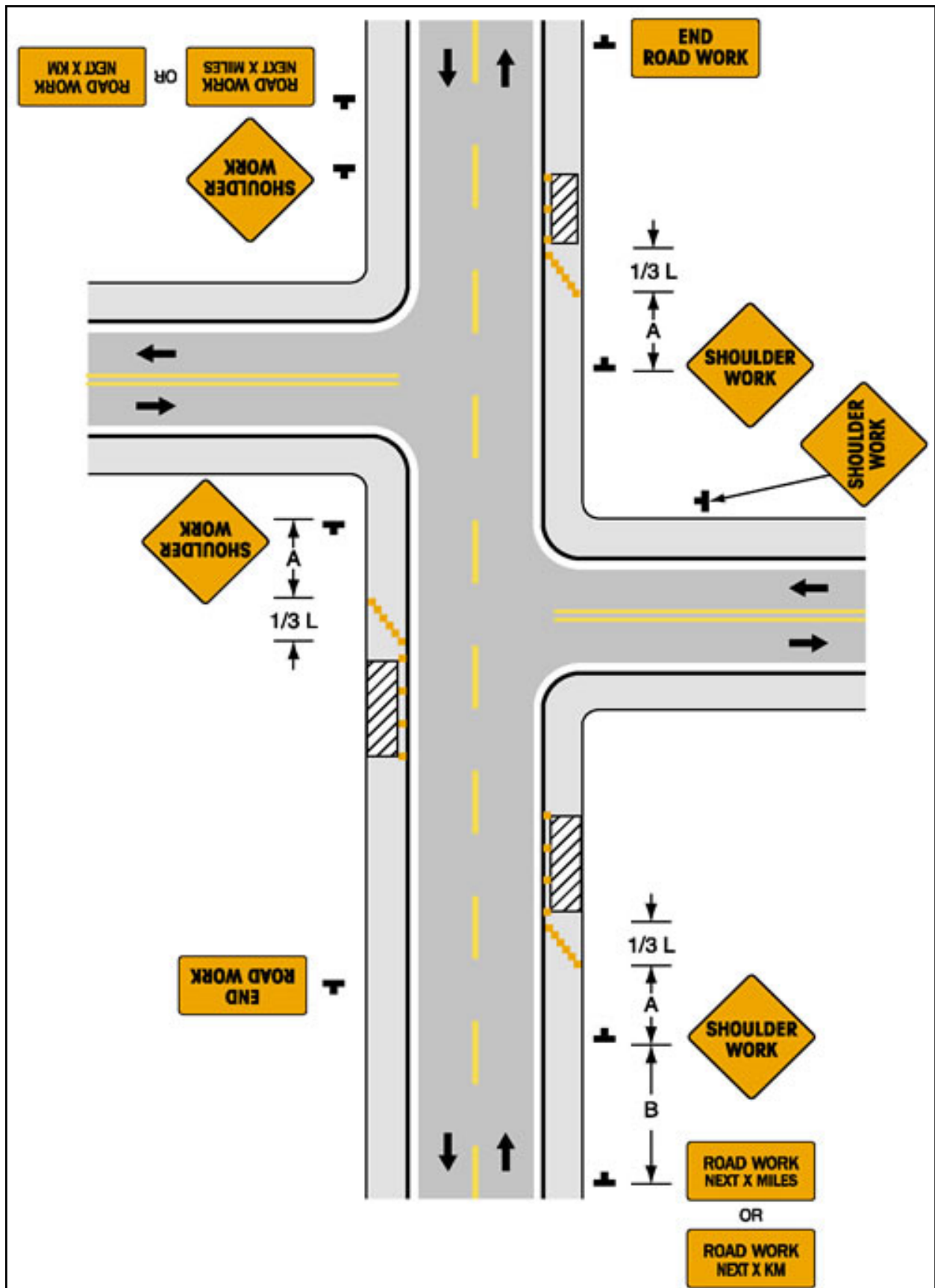
WORK PERFORMED ON SHOULDERS

Always use your Work Zone Warning Signs.

Even if the work to be performed does not require the closure of travel lanes, activities conducted adjacent to these lanes could present hazardous conditions for both the motorist and the worker.

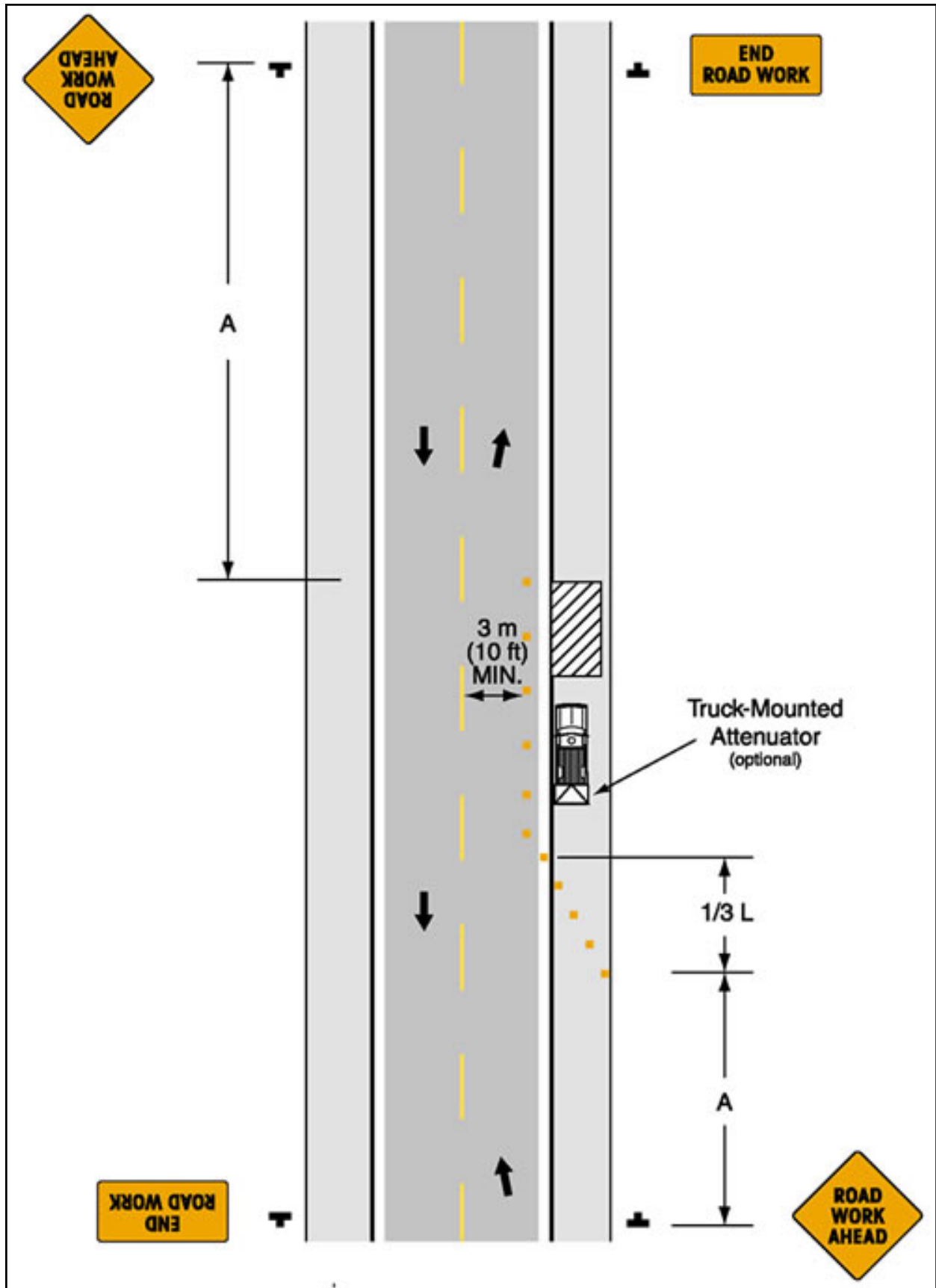
- A **SHOULDER WORK** sign should be placed on the left side of the roadway for a divided or one-way street only if the left shoulder is affected.
- The **WORKERS** symbol signs may be used instead of SHOULDER WORK signs.
- The **SHOULDER WORK AHEAD** sign on intersecting roadway may be omitted where drivers emerging from that roadway will encounter another advance warning sign prior to the work activity area.
- For short-duration operations of 60 minutes or less, all signs and channeling devices may be eliminated if a vehicle with **ACTIVATED** rotating lights or strobe lights is used.

Although vehicle hazard warning signals can be used to supplement the rotating lights or strobe lights, they shall not be used instead of rotating lights or strobe lights.



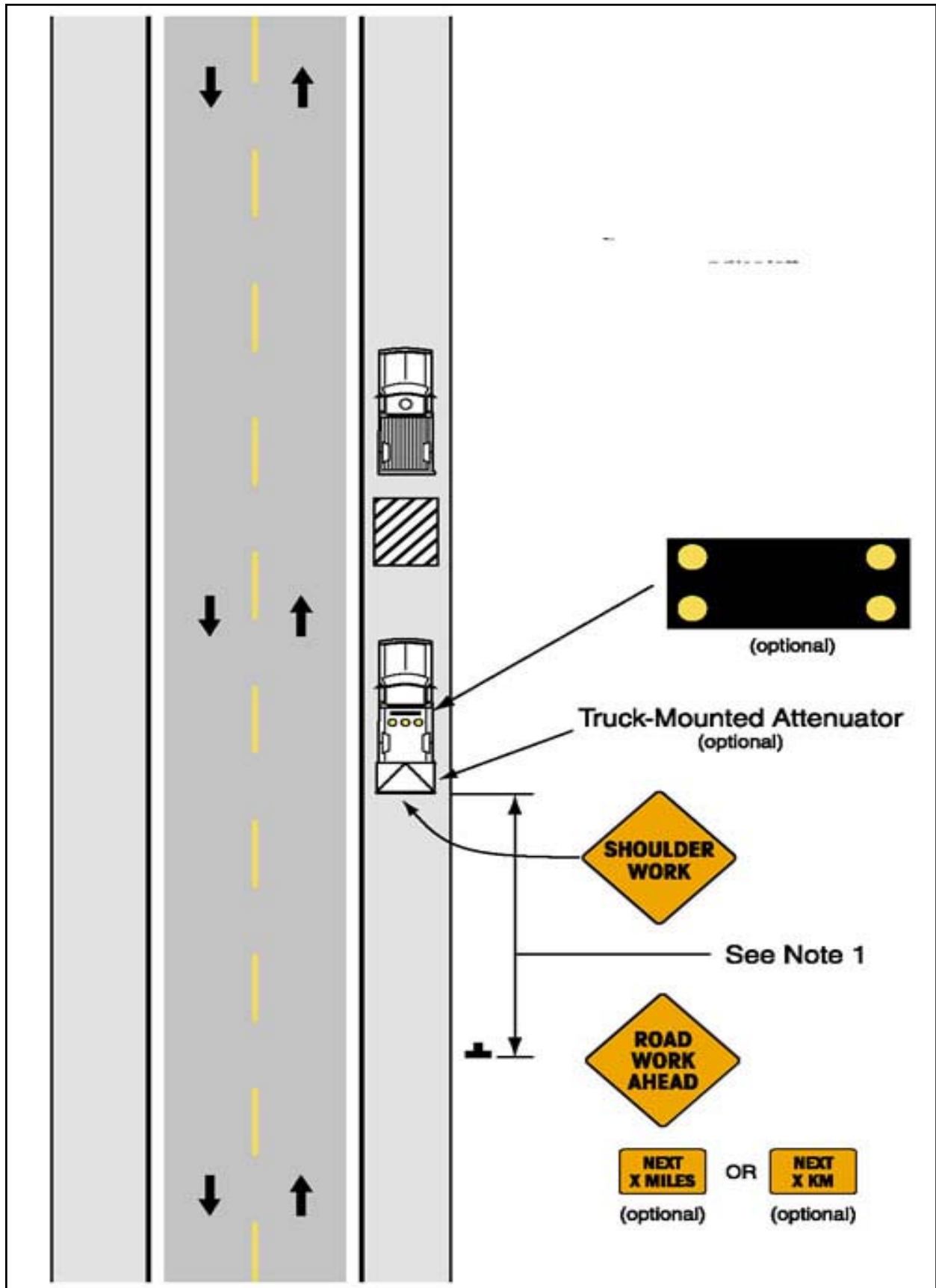
SHOULDER WORK PERFORMED WITH MINOR ENCROACHMENT

- All lanes should maintain at least 10 (ft) lane width in work zone.
- This example should be used on a minor road having low speed. For higher-speed roads, a lane closure should be used.
- For short term use on low-volume, low-speed roads with no heavy commercial vehicles a minimum lane width of (9 ft) may be used.
- For short-duration work, the taper and channeling devices may be omitted if a shadow vehicle with activated rotating lights or strobe lights is used.
- Although vehicle hazard warning signals can be used to supplement the rotating lights or strobe lights, they shall not be used instead of rotating lights or strobe lights.



SHORT-DURATION or MOBILE OPERATION on SHOULDER

- ROAD WORK AHEAD signs should be placed at the beginning of the work zone area.
- The ROAD WORK NEXT xx Miles sign may be used in place of the ROAD WORK AHEAD sign if the work locations occur over a distance more than (2 miles).
- If an arrow panel is used for an operation on the shoulder, the caution mode shall be used.
- Warning signs may be omitted when the work vehicle displays rotating lights or strobe lights if the distance between work locations is 1 (mile) or more, and if the work vehicle travels at traffic speeds between locations.
- Although vehicle hazard warning signals can be used to supplement the rotating lights or strobe lights, they shall not be used instead of rotating lights or strobe lights.



LANE CLOSURES on MINOR STREETS

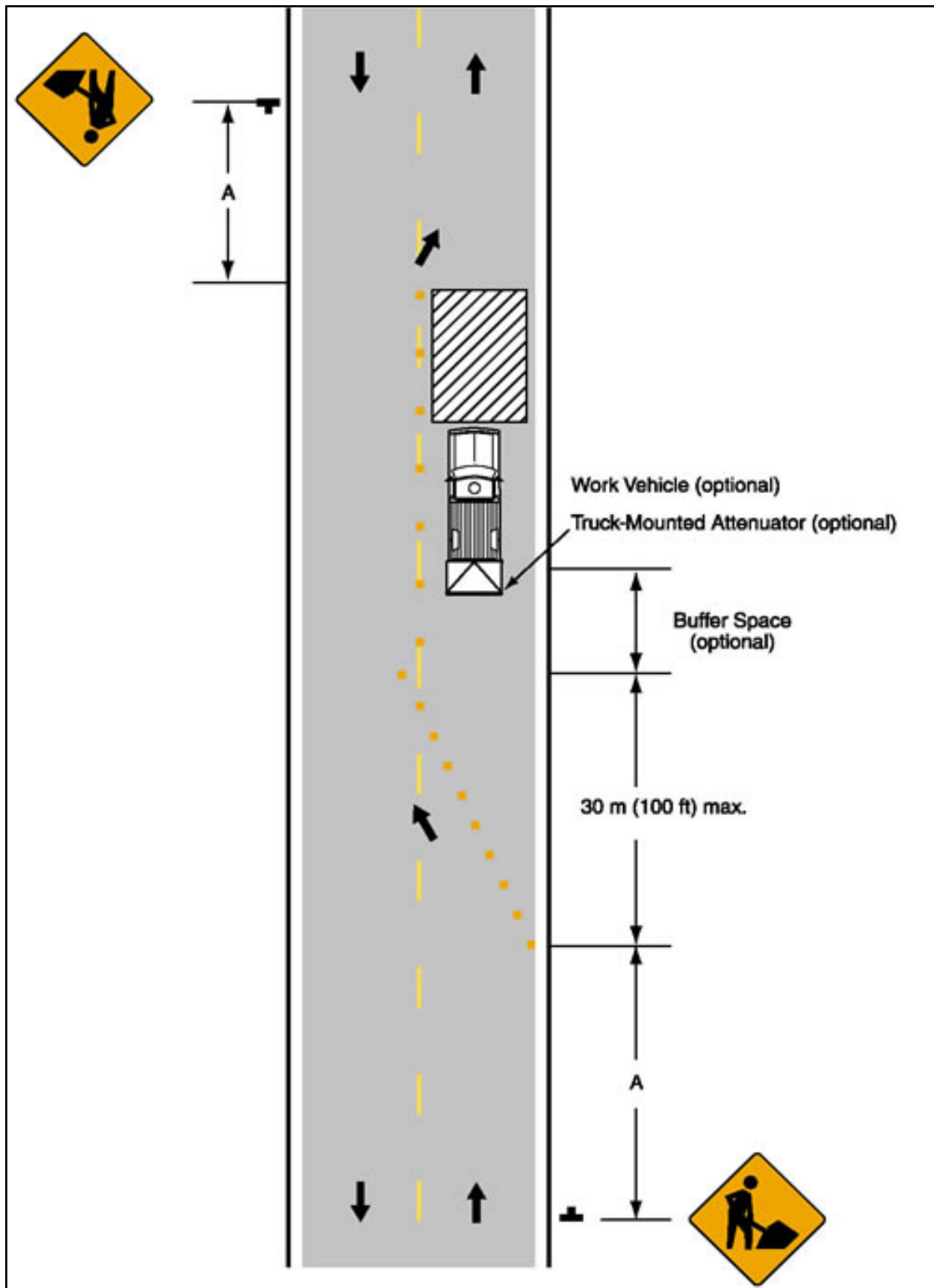
- This temporary traffic control shall be used only for low-volume, low-speed roads
- Where the workspace is short, where drivers can see the roadway beyond, and where volume is low, traffic may be self-regulating.
- Where traffic cannot effectively self-regulate, one or two flaggers shall be used.
- Flashing warning lights or flags, may be used to call attention to the advanced warning signs.

Road Type Recommended Spacing

Urban (low speed)

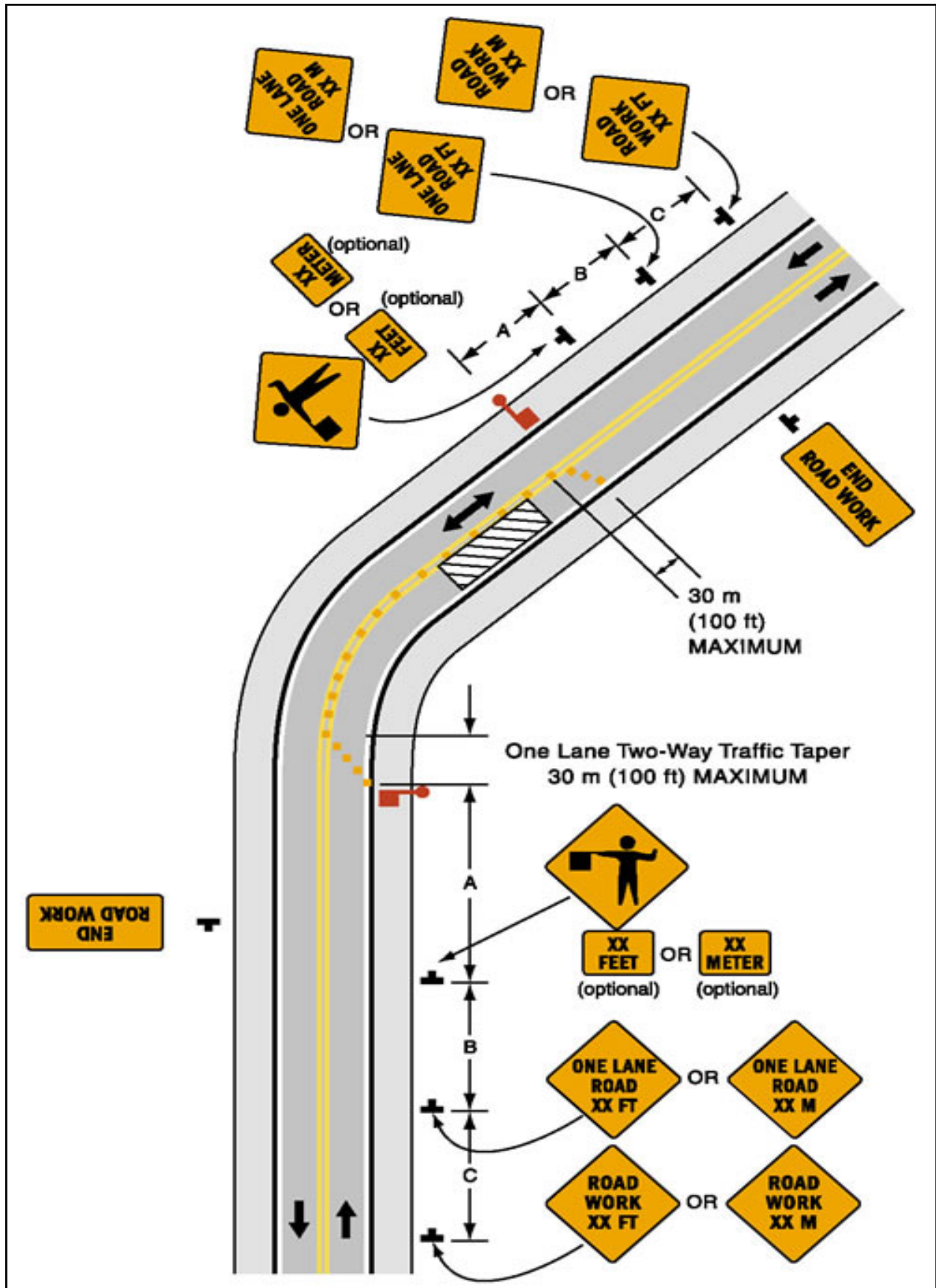
100' For Warning Signs

100' For Tapers



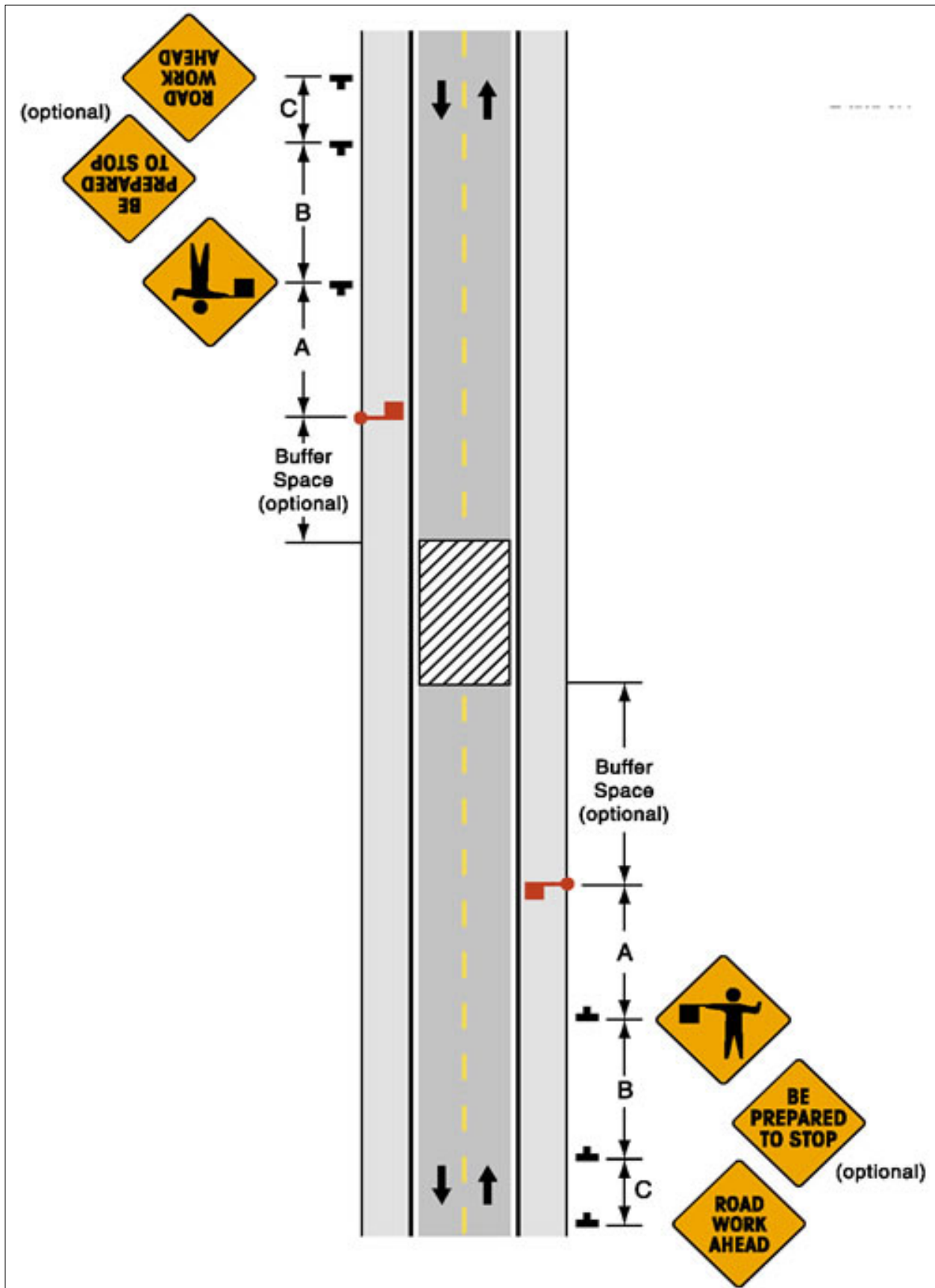
LANE CLOSURES on TWO-LANE ROAD USING FLAGGERS

- For low-volume situations with short work zones where the flagger is visible by approaching traffic from both directions, a single flagger may be used.
- Advanced warning signs shall be used.
- Typical signs include the ROAD WORK AHEAD, ONE LANE ROAD AHEAD, and FLAGMAN AHEAD or FLAGGER SYMBOL.
- **Channeling devices should extend to a point where they are visible to approaching road users.**



TEMPORARY ROAD CLOSURE

- Conditions represented are a planned enclosure not exceeding 20 minutes during daytime hours.
- A flagger shall be present on both approaches to closure area.
- Advanced warning signs shall be used.
- Typical signs include
 - **ROAD WORK AHEAD**
 - **BE PREPARED TO STOP**
 - **FLAGMAN AHEAD** or **FLAGGER SYMBOL.**



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OUR MISSION:

To provide a safe, economical and environmentally sensitive means of moving people and goods through an accessible transportation network which serves the best interests of High Point. The Mission will be accomplished by incorporating advanced technology, wise use of resources, open communications, a spirit of cooperation and teamwork, and future planning.